As part of my second mentoring of the InTeGrate FMN for QUBES, I chose to focus on my conversion of several resources to an online course format. I’ve used InTeGrate materials in multiple onground and hybrid courses since Spring 2016. Student achievement gains in objectives related to soils, agriculture, mining, climate change, among others have been measurable through these resources. Beginning in the fall of 2017, and continuing through spring and summer 2018, I began to add InTeGrate modules to purely online courses (Intro to Environmental Science and Earth Science) with the same goals and outcomes. The interactive and interdisciplinary nature of the InTeGrate modules bring richness to a course that should be available to students no matter what through which modality they are learning.

The units/activities I used were not originally developed for an online format, unlike two of the InTeGrate Modules specifically designed for online learning. While most of the InTeGrate activities were able to be incorporated smoothly with comprehensive planning and targeted student instructions, other activities proved to be a bit more challenging to adapt. Activities from the following modules were modified for inclusion into online courses: Natural Hazards and Risks: Hurricanes, A Growing Concern/Soils, Systems, and Society, The Wicked Problem of Global Food Security, Climate of Change, and Humans Dependence on Earth’s Mineral Resources.

The starting point for this project was that I knew InTeGrate modules provide wonderful modules/units to modify! The activities I used within Climate of Change, specifically Unit 1, were easily incorporated online with few adaptations. The reading comprehension quiz was delivered through our LMS and reflection questions were included as extension.

As mentioned before, however, some units do not transition as easily to an online platform, especially with limited interactivity between students. I have found that explanations and instructions can never be too explicit! As an example, students had difficulty with the mapping of Unit 1 of The Wicked Problem of Global Food Security (we needed to use Google Earth as they were online students) and directions the first time it was implemented. For work with multiple levels of instruction or pieces, such as that within this unit, students need very clear, detailed instructions to make the project work for them. In successive iterations of the course, the directions have become more thorough and explicit so students are not bogged down with the activity but instead are looking into the concepts.

Finally, online group work can be difficult with varying schedules and a fast-paced course, especially during the summer. Therefore, I’ve focused my attention on individual activities with group discussions and responses as extensions from those activities. Finally, I’ve incorporated the higher-level thought questions for online courses into my summative assessments where they are expected to integrate the knowledge from the course materials and the InTeGrate activities into a meaningful picture of the world’s issues.

Overall, utilizing these resources in my online courses has proven to be just as rewarding as in my onground classes, although, as with most online teaching, it has taken much more forethought to get there. I encourage anyone teaching online that is incorporating sustainability or geoscience to consider adapting these resources for their own courses.